TRAFFIC SPEED REPORT No. 59
TRUCK WEIGHT-SPEED STUDY

SEPT., 1956
No. 33

Joint Highway Research Project

PURDUE UNIVERSITY
LAFAYETTE INDIANA

by

R. J. HENNING

TRAFFIC SPEED REPORT NO. 59

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TO: K. B. Woods, Director
Joint Highway Research Project

September 26, 1956

FROM: Harold L. Michael, Assistant Director

File: 8-1-1
C-36-10

Attached is speed report No. 59 which is a summary of the truck weight speed studies conducted during August 1956. The report has been prepared by Mr. Robert Henning of our staff.

Survey for 1956 when compared with 1955 reports indicates that a very slight increase in average speed of trucks has occurred and that average gross weights decreased slightly. Speed violations of trucks have decreased slightly since 1955.

Respectfully submitted,

Harold L. Michael

Harold L. Michael, Assistant Director
Joint Highway Research Project

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TRAFFIC SPEED REPORT NO. 59

TRUCK WEIGHT - SPEED STUDY

by

Robert J. Henning, Research Assistant

Joint Highway Research Project

File: C-36-10

In

Cooperation

With

The State Highway Planning Survey

On

August 6, 9, 16, 17, 22, 27, 28, 29, 31, 1956

Purdue University
Lafayette, Indiana

September 26, 1956

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INTRODUCTION

The Joint Highway Research Project of Purdue University cooperated with the Highway Planning Survey Unit of the State Highway Department of Indiana, in conducting the field work of an annual truck weight-speed study during August, 1956. This was the twelfth year in which a cooperative study was made.

Prior to 1944, studies were limited to a determination of truck-weight distribution patterns and twenty permanent stations were selected for this purpose. The first truck-speed studies were made in 1944 to supplement the weight data and have been continued annually to the present with the exception of 1945. When the truck-speed studies were initiated in 1944, speeds were taken at only four of the twenty truck-weight stations; from 1944 to 1950 the number of truck speed stations varied until 1951 when twelve stations were selected. The location and number of the truck weight-speed stations remained constant from 1951 to 1953. In 1954 and 1955, however, speeds were taken at only ten of the twelve stations used in 1953, while in 1956 only nine stations were studied. One of the 1953 speed-stations was eliminated in 1954, 1955 and 1956 because of its location in a 50 miles per hour speed zone. This action was recommended by the 1953 study. Speeds were not obtained at the other stations because the Purdue speed indicator was out of order on the days of weighing.

The Purdue speed indicator, first used in the 1953 study, was used at only the first two stations (stations 68 and 45-B) of the 1956 study. This indicator is of the electronic meter type with pneumatic tubes stretched 88 feet apart across the traffic lanes.

When the Purdue speed indicator stopped operating another meter was temporarily borrowed from the West Lafayette post of the Indiana State Police, and was used at Stations 4 and 2. This indicator makes use of a stop-watch activated by pneumatic tubes stretched 132 feet apart across the traffic lanes. Speeds were obtained at the remainder of the stations (Stations 14, 42, 58-P, 75, and 81) by using a radar meter borrowed from Mr. R. G. Groves, Engineer of Traffic Regulations, State Highway Department of Indiana. The radar meter proved to be the best suited of the three for this study as "ganging-up" of traffic did not make it impossible to determine the truck speeds.

Before the speed indicators were used in this study they were thoroughly checked for accuracy in the field by Kenneth L. Lauer, Samuel L. Tribbe, Richard E. Colter, and the writer. The speed meters were calibrated until it was clearly indicated that speeds could be observed and adjusted to within one mile per hour accuracy in the range of 20 to 80 miles per hour.

The speed data were collected and analyzed by members of the Traffic Engineering Laboratory Staff.

OBSERVATION PROCEDURE

The weight stations used for the coordinated truck weight-speed study, which are shown on the attached map of Indiana (Figure 1), were located as indicated below, and were operated on the dates noted:

Date	Station	Highway	Location	No. of Lanes
Aug. 6	68	U.S.52	1.50 Miles W. of W. Corp. Limits of Aurora	2
Aug. 9	45 B	S.R.67	1.00 Mile S. W. of Muncie	2
Aug.16	4	U.S.31	1000 Feet S. of Jct. U.S. 6	2
Aug.17	2	U.S.20	1500 Feet W. of Jct. of S.R. 2	4
Aug.22	14	U.S.41	0.50 Miles S. of N. Jct. of S. R. 2	4
Aug.27	42	U.S.52	600 Feet S. E. on N. Jct. of S. R. 28	4
Aug.28	58 B	U.S.31	1000 Feet S. of Jct. of Co. Rd. to Southport	4
Aug.29	75	U.S.41	0.85 Miles S. of S. City Limits of Terre Haute	4
Aug.31	81	U.S.150	0.50 Miles E. of Jct. of S.R.56	2

The speed stations were selected on the basis of topography and were located from one to three miles from the weight stations. The intervening distance between each weight station and the speed station was sufficient to permit trucks to attain their normal cruising speed.

The weighing crew, operating portable loadometer scales, stopped and weighed all trucks moving in a given direction for a two-hour period. During the succeeding two hours, trucks moving in the opposite direction were stopped and weighed. Each station was in operation from 6:00 A. M.

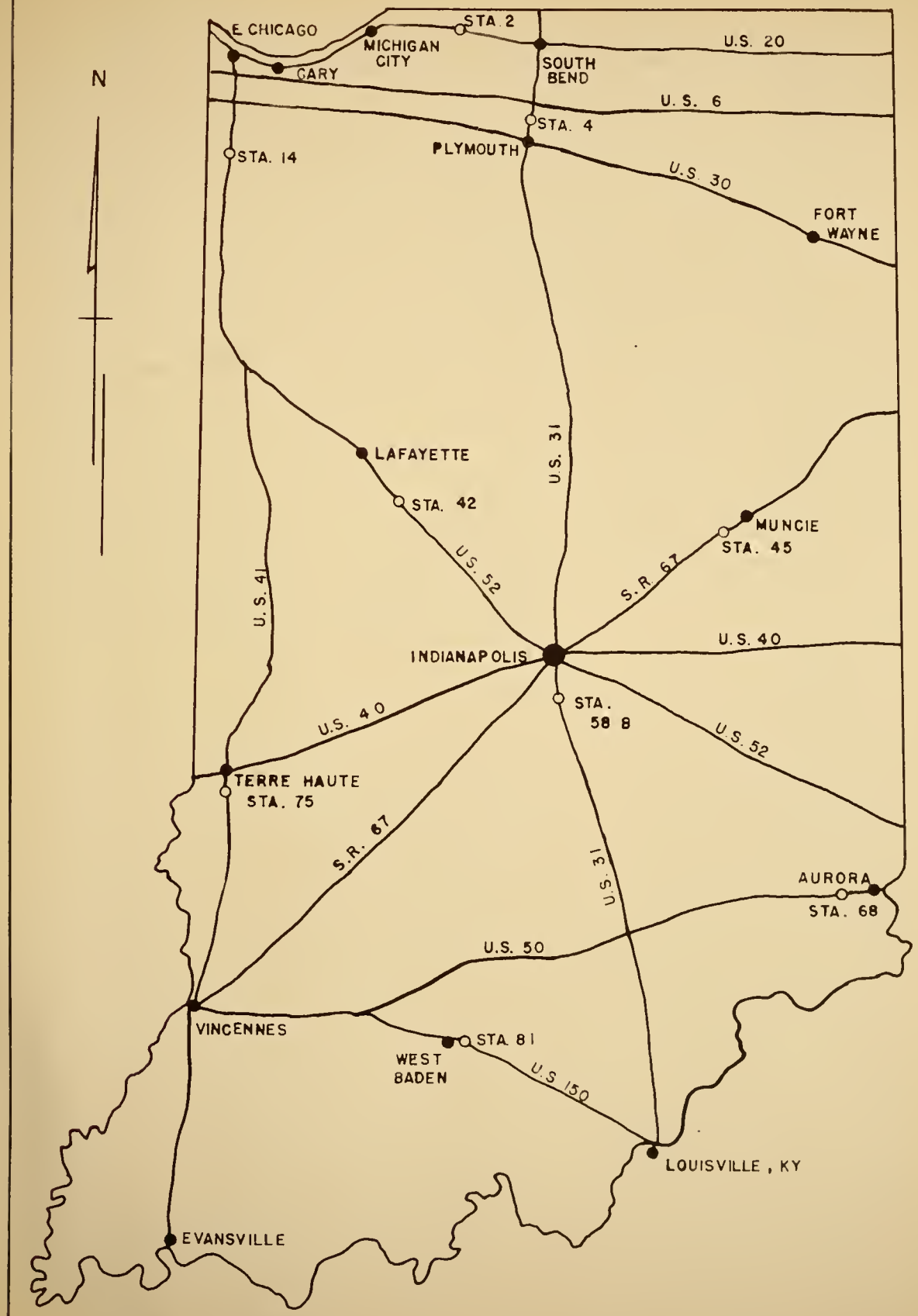


FIG. 1 LOCATIONS OF TRUCK WEIGHT - SPEED STATIONS

to 2 P.M. C.D.S.T.

Speed stations were operated at the same time as the weight stations. At each speed stations the speed of each truck moving in the proper direction was recorded to the nearest mile per hour.

For the purpose of correlating the speed and weight data both the weight crew and speed crew briefly described each truck, as to color and owner, where possible, and coded each truck as to type. During the study it was observed that some of the trucks turned off the road between stations so that one crew or the other was unable to obtain the required information. It was also noted that a few trucks parked until the operation was changed to the opposite direction. On divided highways some trucks were missed in the direction change-over at the end of each two-hour period.

REPORTING PROCEDURE

For the purposes of this report all trucks were divided into two groups - trucks (single units) and semi-trailers (multiple units). The former group was further subdivided for some of the analysis into those having a gross-weight of 5,000 pounds or more and those having a gross weight of less than 5,000 pounds in order to compare with existing speed limits. The present legal speed limits for trucks of 5,000 pounds gross weight or more is 45 miles prt hour, for trucks less than 5,000 pounds is 65 miles per hour, and for busses is 55 miles per hour.

Table I provides the speed and weight data and summary for single unit trucks weighing less than 5,000 pounds observed on each station. Similar information is presented in Table I for all single-unit trucks with gross-weight greater than 5,000 pounds. Table II is arranged in a manner similar to Table I in order to provide all speed and weight data for semi-trailers (multiple units). The number and percentage of vehicles exceeding the legal and "enforcement speed limits," by station, is presented in Table III. All-station accumulation curves for trucks and for semi-trailers are shown in Figure 2. Similar speed accumulation curves for trucks and semi-trailers on two-lane and four-lane highways are shown in Figures 3 and 4. A speed-weight comparison is presented in graphical form for trucks in Figure 5, and for semi-trailers in Figure 6.

PER HOUR

TATION 75 UG. 29, 1956		STATION 81 AUG. 31, 1956		SUMMARY		
VG. EED	NO. OF TRUCKS	AVG. SPEED	NO. OF TRUCKS	AVG. SPEED	NO. OF TRUCKS	WEIGHT (KIPS)
49.1	51	44.8	25	51.3	226	0 — 4
51.0	30	47.6	8	50.0	130	4 — 5
81		33		356		TOT. TRUCKS
3,000		2,600		2,961		AVG. WT. (LBS)
49.8		45.5		50.8		AVG. SPEED
79.0		81.8		78.6		% EMPTY
45.4	38	45.1	31	45.9	211	5 — 8
45.6	33	45.8	17	45.2	188	8 — 12
42.4	14	39.8	7	44.0	81	12 — 16
43.5	10	42.0	22	42.3	66	16 — 20
42.0	4	40.9	9	42.4	27	20 — 24
		37.0	1	43.0	6	24 — 28
47.0	2			43.6	6	28 — 32
47.0	2			44.2	9	32 — 36
42.0	1			47.0	2	36 — 40
104		87		596		TOT. TRUCKS
11,600		12,600		11,495		AVG. WT. (LBS)
44.8		43.5		44.8		AVG. SPEED
33.7		25.3		32.2		% EMPTY

TABLE I SINGLE UNIT TRUCK SPEEDS IN MILES PER HOUR

WEIGHT (KIPS)	STATION 68 AUG. 6, 1956		STATION 45-B* AUG. 9, 1956		STATION 4 AUG. 16, 1956		STATION 2 AUG. 17, 1956		STATION 14 AUG. 22, 1956		STATION 42 AUG. 27, 1956		STATION 58-B AUG. 28, 1956		STATION 75 AUG. 29, 1956		STATION 81 AUG. 31, 1956		SUMMARY		WEIGHT (KIPS)
	AVG. SPEED	NO. OF TRUCKS	AVG. SPEED	NO. OF TRUCKS	AVG. SPEED	NO. OF TRUCKS	AVG. SPEED	NO. OF TRUCKS	AVG. SPEED	NO. OF TRUCKS	AVG. SPEED	NO. OF TRUCKS	AVG. SPEED	NO. OF TRUCKS	AVG. SPEED	NO. OF TRUCKS	AVG. SPEED	NO. OF TRUCKS	AVG. SPEED	NO. OF TRUCKS	
0 — 4	47.5	10	57.0	7	42.9	16	57.0	7	50.7	27	53.7	9	56.2	74	49.1	51	44.8	25	51.3	226	0 — 4
4 — 5	44.8	9	56.5	11	41.1	12	45.3	3	48.7	8	53.8	14	51.1	35	51.0	30	47.6	8	50.0	130	4 — 5
TOT. TRUCKS	19		18		28		10		35		23		109		81		33		356		TOT. TRUCKS
AVG. WT. (LBS)	3,600		3,500		3,100		2,800		2,600		3,600		2,800		3,000		2,600		2,961		AVG. WT. (LBS)
AVG. SPEED	46.2		56.7		42.2		53.5		50.3		53.7		54.6		49.8		45.5		50.8		AVG. SPEED
% EMPTY	84.2		83.3		96.4		100.0		77.1		87.0		67.9		79.0		81.8		78.6		% EMPTY
5 — 8	45.7	11	52.0	13	42.4	13	46.3	7	43.0	25	48.2	25	46.5	48	45.4	38	45.1	31	45.9	211	5 — 8
8 — 12	44.6	17	48.7	12	41.5	10	45.1	13	44.4	19	46.4	16	44.9	51	45.6	33	45.8	17	45.2	188	8 — 12
12 — 16	42.0	8	47.0	5	43.4	7	47.0	6	41.0	5	46.5	10	45.7	19	42.4	14	39.8	7	44.0	81	12 — 16
16 — 20	42.0	5	42.0	1	41.0	5	37.0	1	34.7	7	53.0	5	43.0	10	43.5	10	42.0	22	42.3	66	16 — 20
20 — 24	42.0	5			37.0	1					37.0	1	46.3	7	42.0	4	40.9	9	42.4	27	20 — 24
24 — 28	47.0	1					32.0	1	52.5	2			37.0	1			37.0	1	43.0	6	24 — 28
28 — 32											42.0	4			47.0	2			43.6	6	28 — 32
32 — 36	47.0	1									37.0	2	45.8	4	47.0	2			44.2	9	32 — 36
36 — 40													52.0	1	42.0	1			47.0	2	36 — 40
TOT. TRUCKS	48		31		36		28		58		63		141		104		87		596		TOT. TRUCKS
AVG. WT. (LBS)	11,600		9,400		11,000		10,800		10,300		12,200		11,600		11,600		12,600		11,495		AVG. WT. (LBS)
AVG. SPEED	44.0		49.6		42.0		45.0		42.6		46.9		45.5		44.8		43.5		44.8		AVG. SPEED
% EMPTY	52.1		38.7		27.8		35.7		34.5		33.3		26.2		33.7		25.3		32.2		% EMPTY

*NOTE: SPEEDS WERE CHECKED FOR ONLY 4 HRS. AT THIS STATION

ER HOUR

	75 1956	STATION 81 AUG. 31, 1956		SUMMARY		
WEIGHT	O. OF EMIS	AVG. SPEED	NO. OF SEMIS	AVG. SPEED	NO. OF SEMIS	WEIGHT (KIPS)
0 -						0 — 8
8 -				46.3	3	8 — 12
12 -	2	42.0	1	45.8	19	12 — 16
16 -	10	45.0	5	44.9	90	16 — 20
20 -	3	45.5	20	45.0	142	20 — 24
24 -	8	47.0	7	45.4	110	24 — 28
28 -	2	48.6	3	45.9	85	28 — 32
32 -	2	44.5	2	44.6	72	32 — 36
36 -	6	40.7	4	44.1	74	36 — 40
40 -	4	34.5	2	44.2	65	40 — 44
44 -	1	42.0	1	44.3	51	44 — 48
48 -	6	42.8	6	43.7	74	48 — 52
52 -	6	43.5	10	42.0	90	52 — 56
56 -	9	44.5	2	45.2	51	56 — 60
60 -	1	40.3	3	44.8	25	60 — 64
64 -		37.0	1	42.2	23	64 — 68
68 -		42.0	2	41.5	26	68 — 72
72 -	2			43.5	25	72 — 76
76 -				43.5	6	76 — 80
80 -				40.5	2	80 — 84
TOT. TR		69		1033		TOT. TRUCKS
AVG. WT.	O	36,400		37,881		AVG. WT. (LBS.)
AVG. SPEE		44.0		44.4		AVG. SPEED (MPH)
% EMP		43.5		30.8		% EMPTY

* NO

TABLE II SEMI-TRAILERS (MULTIPLE UNITS) SPEEDS IN MILES PER HOUR

WEIGHT (KIPS)	STATION 68 AUG. 6, 1956		STATION 45-B* AUG. 9, 1956		STATION 4 AUG. 16, 1956		STATION 2 AUG. 17, 1956		STATION 14 AUG. 22, 1956		STATION 42 AUG. 27, 1956		STATION 58-B AUG. 28, 1956		STATION 75 AUG. 29, 1956		STATION 81 AUG. 31, 1956		SUMMARY		WEIGHT (KIPS)
	AVG. SPEED	NO. OF SEMIS	AVG. SPEED	NO. OF SEMIS	AVG. SPEED	NO. OF SEMIS	AVG. SPEED	NO. OF SEMIS	AVG. SPEED	NO. OF SEMIS	AVG. SPEED	NO. OF SEMIS	AVG. SPEED	NO. OF SEMIS	AVG. SPEED	NO. OF SEMIS	AVG. SPEED	NO. OF SEMIS	AVG. SPEED	NO. OF SEMIS	
0 -8																					0 — 8
8 -12					47.0	1			45.0	1	47.0	1							46.3	3	8 — 12
12 -16					42.0	1	47.0	1	43.7	4	47.0	5	48.0	5	44.5	2	42.0	1	45.8	19	12 — 16
16 -20	44.0	5	48.0	10	40.9	9	47.5	9	43.4	22	45.3	9	46.1	11	45.5	10	45.0	5	44.9	90	16 — 20
20 -24	44.0	12	47.4	12	44.3	11	43.0	10	43.2	26	45.3	24	47.0	24	43.7	3	45.5	20	45.0	142	20 — 24
24 -28	41.4	8	52.7	7	45.1	13	45.0	20	44.3	16	44.7	11	47.0	20	42.6	8	47.0	7	45.4	110	24 — 28
28-32	40.0	5	53.1	9	43.1	9	45.3	24	46.3	15	45.6	7	45.6	11	44.5	2	48.6	3	45.9	85	28 — 32
32-36	46.4	8	45.3	3	40.6	7	45.5	21	44.2	19	45.8	4	44.5	6	44.5	2	44.5	2	44.6	72	32 — 36
36-40	40.3	6	49.5	2	41.2	6	46.0	18	45.0	12	41.3	7	45.8	13	43.7	6	40.7	4	44.1	74	36 — 40
40-44	43.0	5	50.8	4	42.0	8	45.2	17	45.7	14	43.2	4	42.7	7	42.0	4	34.5	2	44.2	65	40 — 44
44-48	52.0	3	50.8	4	47.0	1	44.7	13	42.6	14	42.0	4	42.0	10	47.0	1	42.0	1	44.3	51	44 — 48
48-52	32.0	2	54.5	2	42.0	3	42.6	15	44.6	22	41.2	6	46.2	12	42.8	6	42.8	6	43.7	74	48 — 52
52-56	37.0	5	45.0	5	42.0	4	43.3	22	42.0	15	40.3	9	41.3	14	41.2	6	43.5	10	42.0	90	52 — 56
56-60	45.7	8	52.0	4	44.5	2	44.5	12	45.0	5	49.5	2	43.4	7	43.7	9	44.5	2	45.2	51	56 — 60
60-64	57.0	1	50.3	3			41.2	6	44.4	8	44.5	2	47.0	1	52.0	1	40.3	3	44.8	25	60 — 64
64-68	42.0	1	42.0	1			43.1	9	42.5	8	39.5	2	42.0	1			37.0	1	42.2	23	64 — 68
68-72	37.0	2	47.0	1			40.8	4	44.3	7	40.0	10					42.0	2	41.5	26	68 — 72
72-76	47.0	6	44.5	2	42.0	1	42.8	6	41.2	4			40.8	4	44.5	2			43.5	25	72 — 76
76-80	47.0	2			32.0	1			45.0	3									43.5	6	76 — 80
80-84							41.0	1	40.0	1									40.5	2	80 — 84
TOT. TRUCKS	79		69		77		208		216		107		146		62		69		1033		TOT. TRUCKS
AVG WT. (LBS)	39,900		36,100		32,700		40,100		39,600		36,200		36,200		38,800		36,400		37,881		AVG. WT. (LBS.)
AVG. SPEED (MPH)	43.4		49.3		42.7		44.4		44.1		43.7		45.1		43.7		44.0		44.4		AVG. SPEED (MPH)
% EMPTY	30.4		44.9		35.1		23.1		32.4		37.4		25.3		17.7		43.5		30.8		% EMPTY

* NOTE: SPEEDS WERE CHECKED FOR 4 HOURS AT THIS STATION

ER HOUR

	75 1956	STATION 81 AUG. 31, 1956		SUMMARY		
WEIGH	O. OF EMIS	AVG. SPEED	NO. OF SEMIS	AVG. SPEED	NO. OF SEMIS	WEIGHT (KIPS)
0						0 — 8
8				46.3	3	8 — 12
12	2	42.0	1	45.8	19	12 — 16
16	10	45.0	5	44.9	90	16 — 20
20	3	45.5	20	45.0	142	20 — 24
24	8	47.0	7	45.4	110	24 — 28
28	2	48.6	3	45.9	85	28 — 32
32	2	44.5	2	44.6	72	32 — 36
36	6	40.7	4	44.1	74	36 — 40
40	4	34.5	2	44.2	65	40 — 44
44	1	42.0	1	443	51	44 — 48
48	6	42.8	6	43.7	74	48 — 52
52	6	43.5	10	42.0	90	52 — 56
56	9	44.5	2	45.2	51	56 — 60
60	1	40.3	3	44.8	25	60 — 64
64		37.0	1	42.2	23	64 — 68
68		42.0	2	41.5	26	68 — 72
72	2			43.5	25	72 — 76
76				43.5	6	76 — 80
80				40.5	2	80 — 84
TOT. T		69		1033		TOT. TRUCKS
AVG. WT		36,400		37,881		AVG. WT. (LBS.)
AVG. SPE		44.0		44.4		AVG. SPEED (MPH)
% EM		43.5		30.8		% EMPTY

* N

TABLE II SEMI-TRAILERS (MULTIPLE UNITS) SPEEDS IN MILES PER HOUR

WEIGHT (KIPS)	STATION 68 AUG. 6, 1956		STATION 45-B* AUG. 9, 1956		STATION 4 AUG. 16, 1956		STATION 2 AUG. 17, 1956		STATION 14 AUG. 22, 1956		STATION 42 AUG. 27, 1956		STATION 58-B AUG. 28, 1956		STATION 75 AUG. 29, 1956		STATION 81 AUG. 31, 1956		SUMMARY		WEIGHT (KIPS)
	AVG. SPEED	NO. OF SEMIS	AVG. SPEED	NO. OF SEMIS	AVG. SPEED	NO. OF SEMIS	AVG. SPEED	NO. OF SEMIS	AVG. SPEED	NO. OF SEMIS	AVG. SPEED	NO. OF SEMIS	AVG. SPEED	NO. OF SEMIS	AVG. SPEED	NO. OF SEMIS	AVG. SPEED	NO. OF SEMIS	AVG. SPEED	NO. OF SEMIS	
0 -8																					0 — 8
8 -12					47.0	1			45.0	1	47.0	1							46.3	3	8 — 12
12 -16					42.0	1	47.0	1	43.7	4	47.0	5	48.0	5	44.5	2	42.0	1	45.8	19	12 — 16
16 -20	44.0	5	48.0	10	40.9	9	47.5	9	43.4	22	45.3	9	46.1	11	45.5	10	45.0	5	44.9	90	16 — 20
20 -24	44.0	12	47.4	12	44.3	11	43.0	10	43.2	26	45.3	24	47.0	24	43.7	3	45.5	20	45.0	142	20 — 24
24 -28	41.4	8	52.7	7	45.1	13	45.0	20	44.3	16	44.7	11	47.0	20	42.6	8	47.0	7	45.4	110	24 — 28
28-32	40.0	5	53.1	9	43.1	9	45.3	24	46.3	15	45.6	7	45.6	11	44.5	2	48.6	3	45.9	85	28 — 32
32-36	46.4	8	45.3	3	40.6	7	45.5	21	44.2	19	45.8	4	44.5	6	44.5	2	44.5	2	44.6	72	32 — 36
36-40	40.3	6	49.5	2	41.2	6	46.0	18	45.0	12	41.3	7	45.8	13	43.7	6	40.7	4	44.1	74	36 — 40
40-44	43.0	5	50.8	4	42.0	8	45.2	17	45.7	14	43.2	4	42.7	7	42.0	4	34.5	2	44.2	65	40 — 44
44-48	52.0	3	50.8	4	47.0	1	44.7	13	42.6	14	42.0	4	42.0	10	47.0	1	42.0	1	44.3	51	44 — 48
48-52	32.0	2	54.5	2	42.0	3	42.6	15	44.6	22	41.2	6	46.2	12	42.8	6	42.8	6	43.7	74	48 — 52
52-56	37.0	5	45.0	5	42.0	4	43.3	22	42.0	15	40.3	9	41.3	14	41.2	6	43.5	10	42.0	90	52 — 56
56-60	45.7	8	52.0	4	44.5	2	44.5	12	45.0	5	49.5	2	43.4	7	43.7	9	44.5	2	45.2	51	56 — 60
60-64	57.0	1	50.3	3			41.2	6	44.4	8	44.5	2	47.0	1	52.0	1	40.3	3	44.8	25	60 — 64
64-68	42.0	1	42.0	1			43.1	9	42.5	8	39.5	2	42.0	1			37.0	1	42.2	23	64 — 68
68-72	37.0	2	47.0	1			40.8	4	44.3	7	40.0	10					42.0	2	41.5	26	68 — 72
72-76	47.0	6	44.5	2	42.0	1	42.8	6	41.2	4			40.8	4	44.5	2			43.5	25	72 — 76
76-80	47.0	2			32.0	1			45.0	3									43.5	6	76 — 80
80-84							41.0	1	40.0	1									40.5	2	80 — 84
TOT. TRUCKS	79		69		77		208		216		107		146		62		69		1033		TOT. TRUCKS
AVG WT. (LBS.)	39,900		36,100		32,700		40,100		39,600		36,200		36,200		38,800		36,400		37,881		AVG. WT. (LBS.)
AVG. SPEED (MPH)	43.4		49.3		42.7		44.4		44.1		43.7		45.1		43.7		44.0		44.4		AVG. SPEED (MPH)
% EMPTY	30.4		44.9		35.1		23.1		32.4		37.4		25.3		17.7		43.5		30.8		% EMPTY

* NOTE: SPEEDS WERE CHECKED FOR 4 HOURS AT THIS STATION

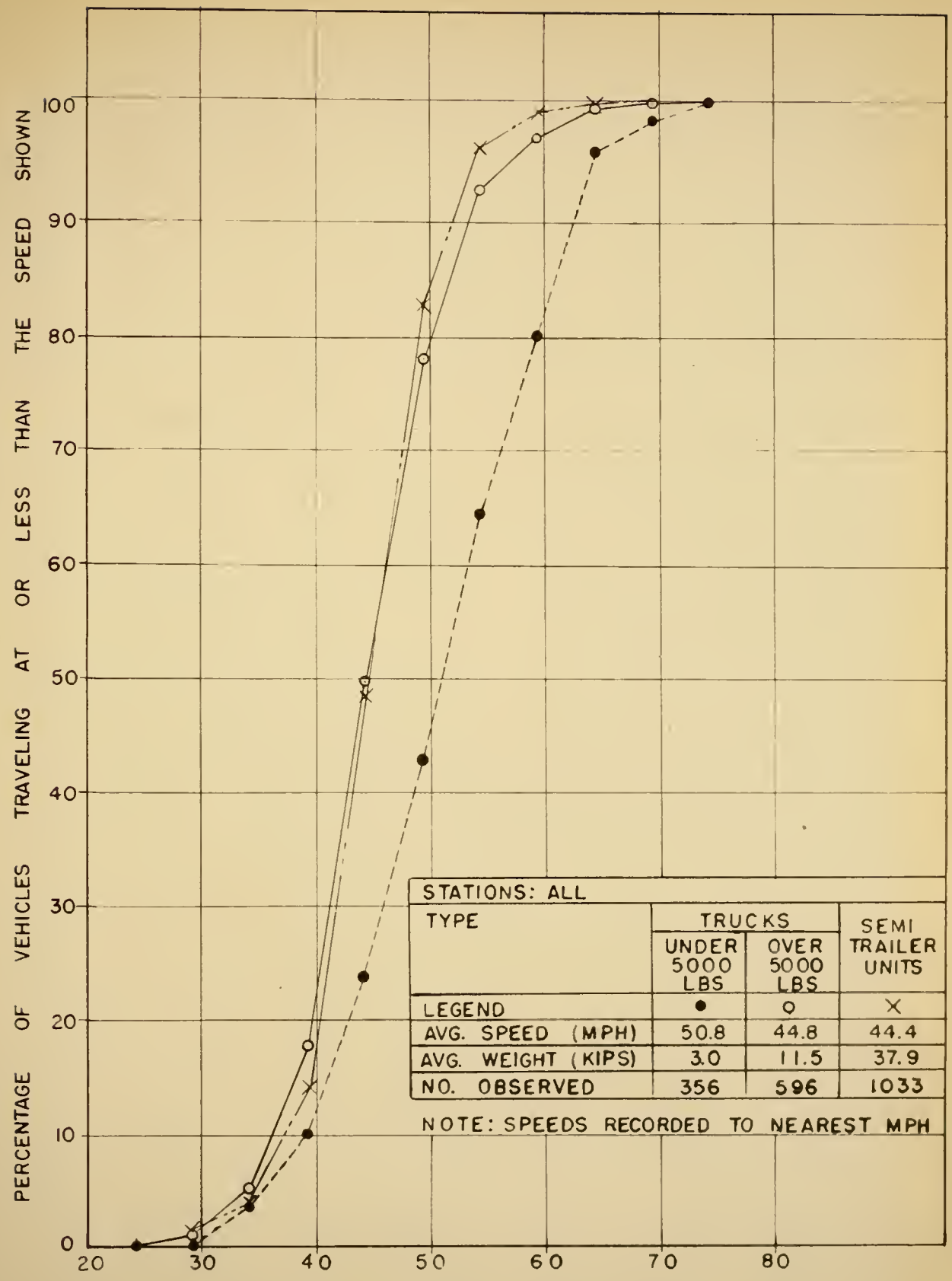
TABLE III
VEHICLES EXCEEDING SPEED LIMIT

	TRUCKS WEIGHING UNDER 5000 LBS. *			TRUCKS WEIGHING OVER 5000 LBS. **			MULTIPLE UNITS **		
TATION	NO NOTED	% EXCEEDING 65 M.P.H.	% EXCEEDING *** 70 M.P.H.	NO NOTED	% EXCEEDING 45 M.P.H.	% EXCEEDING *** 50 M.P.H.	NO NOTED	% EXCEEDING 45 M.P.H.	% EXCEEDING *** 50 M.P.H.
68	19	0	0	48	39.6	14.6	79	44.3	27.8
45B	18	22.2	0	31	67.7	51.6	69	69.9	43.5
4	28	3.6	3.6	36	36.1	2.8	77	20.5	7.8
[illegible]	10	0	0	28	50.0	14.3	208	24.6	5.3
[illegible]	35	2.9	0	58	34.5	17.3	216	31.0	9.3
[illegible]	23	13.0	0	63	54.0	19.0	107	38.3	1.9
58B	109	4.6	0.9	141	48.2	15.6	146	44.5	13.0
[illegible]	81	1.2	0	104	43.3	15.4	62	33.9	6.5
81	33	0	0	87	29.9	6.9	69	31.9	7.2
[illegible]	356	4.2	0.6	596	43.6	15.8	1033	37.5	11.5

Indiana State speed limit for trucks with gross-weight less than 5000 lbs. is 65 m.p.h.

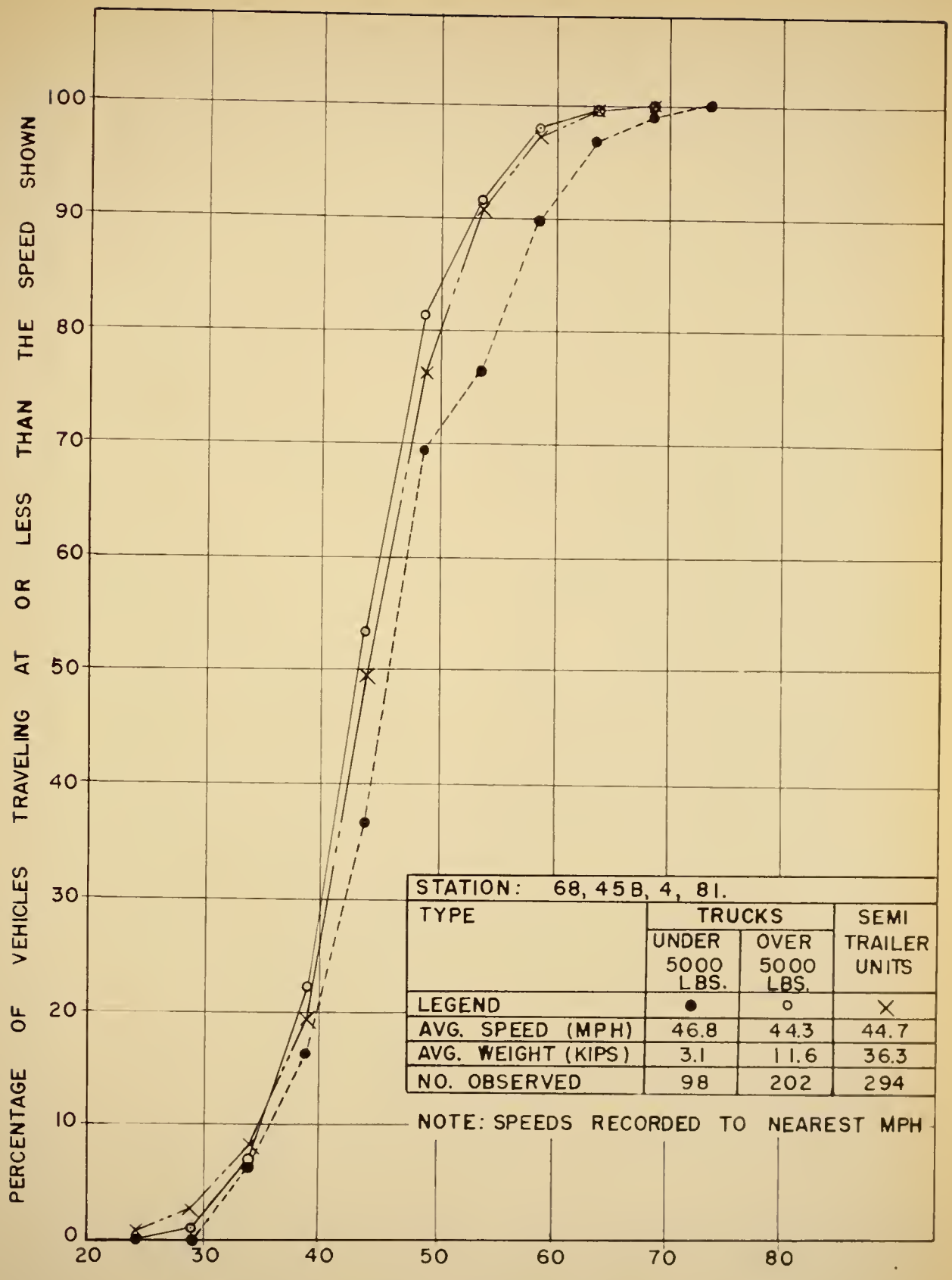
Indiana State speed limit for trucks with gross-weight 5000 lbs or more is 45 m.p.h.

The enforcement speed limit is usually considered to be the legal speed limit plus 5 m.p.h.



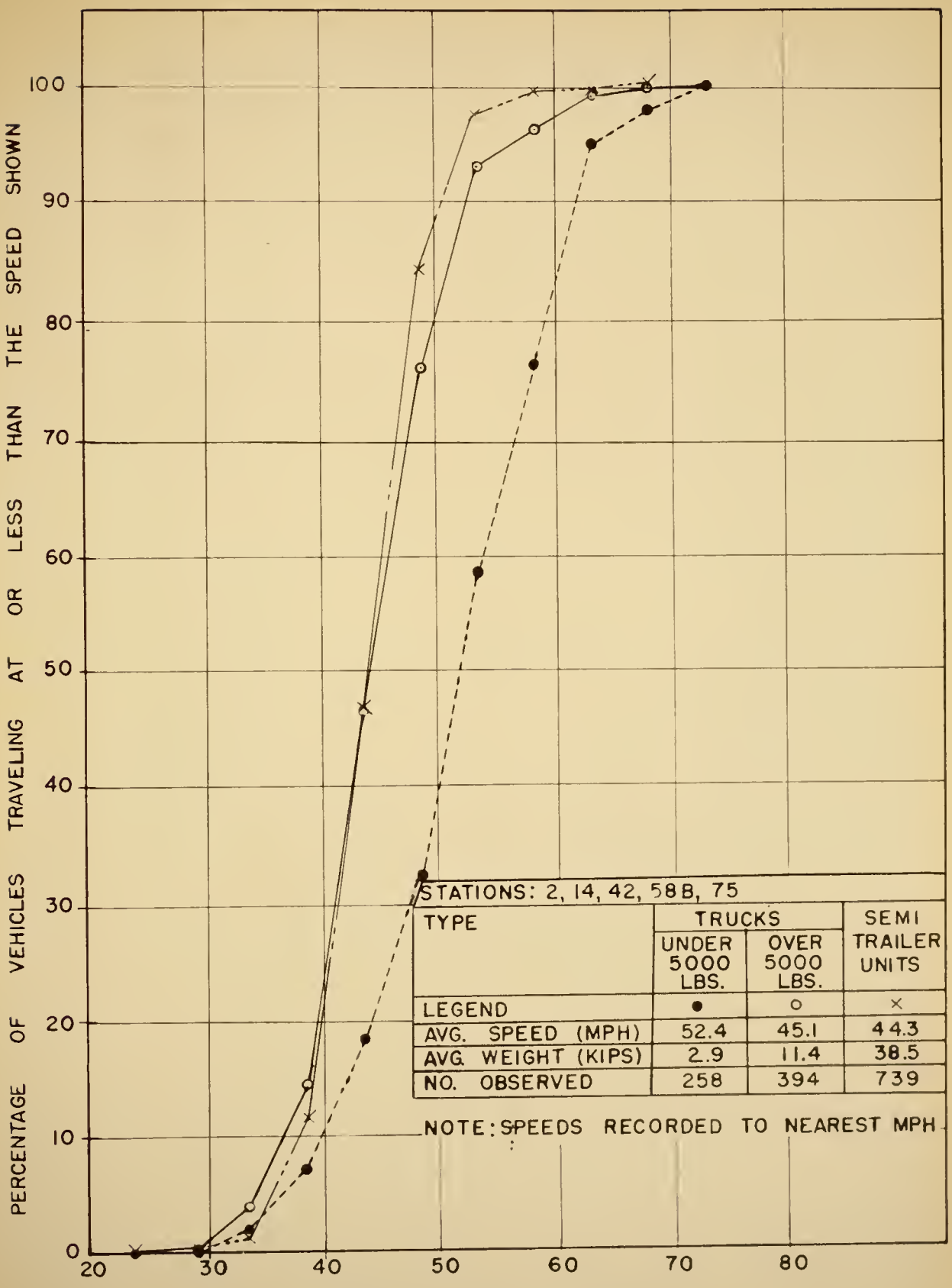
SPEED ACCUMULATION CURVES FOR ALL HIGHWAYS

FIG. 2



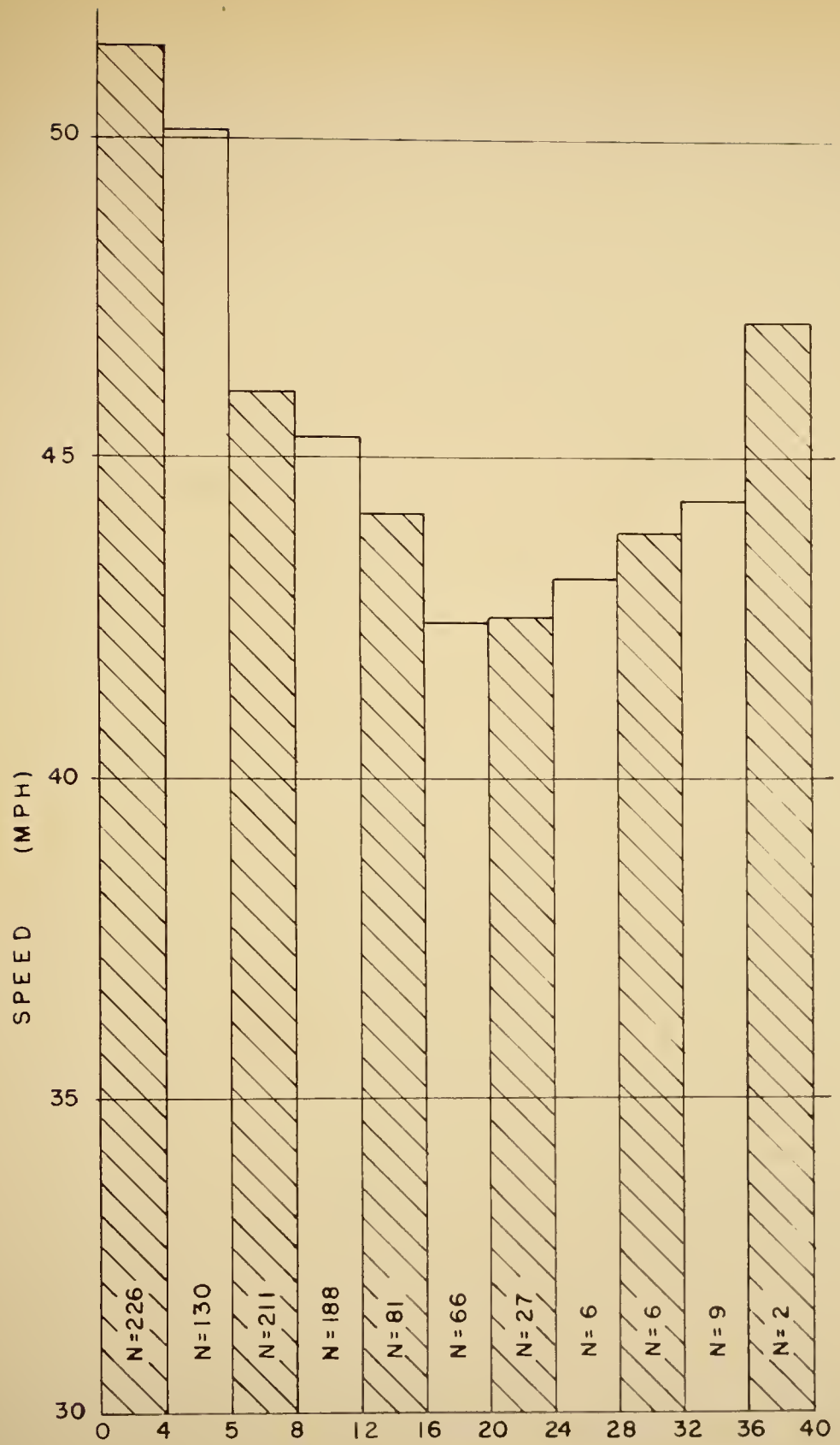
SPEED ACCUMULATION CURVES FOR TWO-LANE HIGHWAYS

FIG. 3



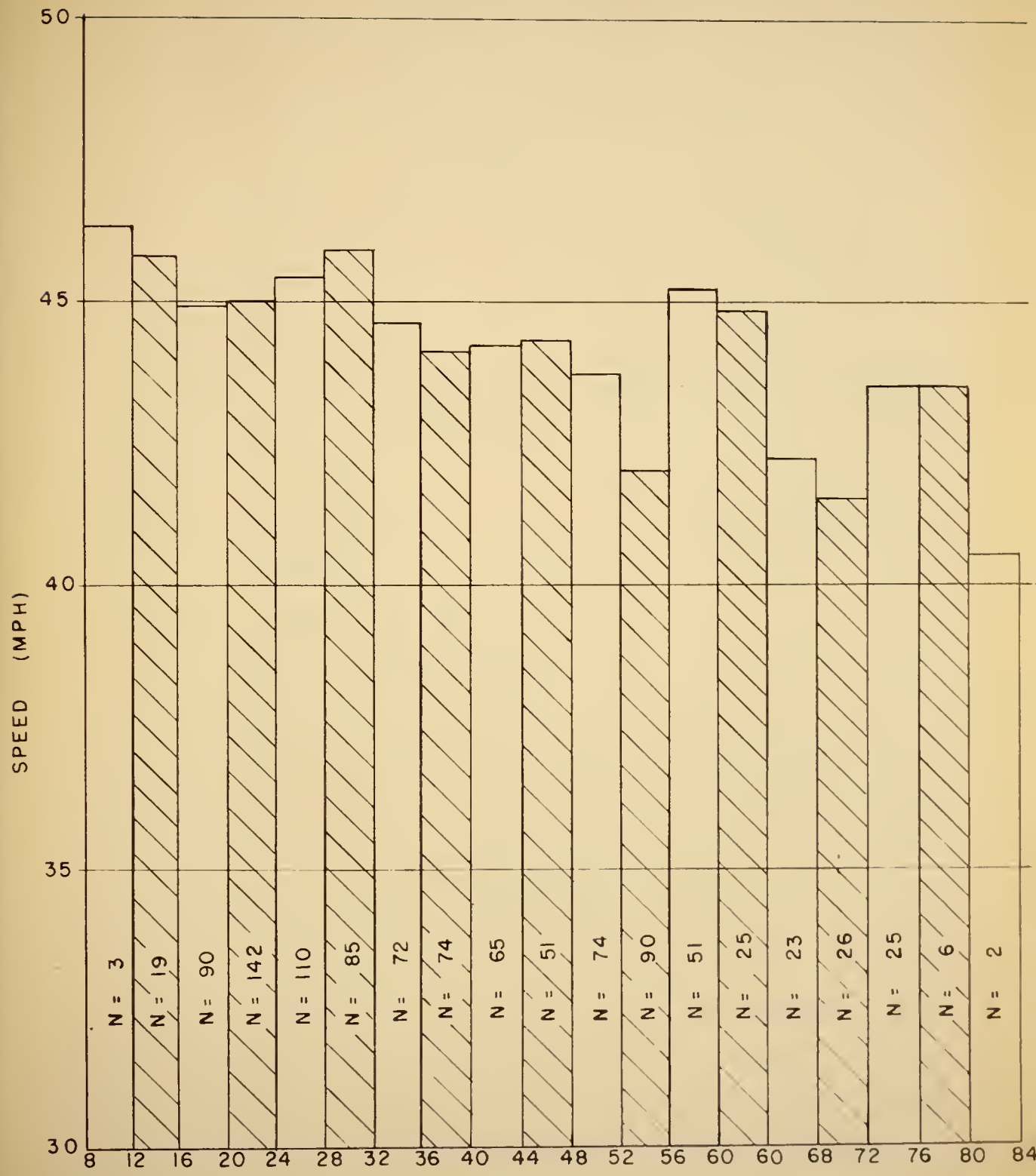
SPEED ACCUMULATION CURVES FOR FOUR-LANE HIGHWAYS

FIG. 4



AVERAGE SPEED VS. GROSS WEIGHT FOR TRUCKS

FIG. 5



AVERAGE SPEED VS GROSS WEIGHT FOR SEMI-TRAILERS

FIG. 6

SUMMARY OF RESULTS

From Tables I & II the following observations are made:

Single-unit trucks with a gross-weight of less than 5,000 pounds:

- Number of vehicles observed 356
- Average speed . . . . . 50.8 m.p.h.
- Average weight . . . . . 3000 pounds
- Percent empty. 78.6%

Single-unit trucks with a gross-weight of 5,000 pounds or more:

- Number of vehicles observed 596
- Average speed. . . . . 44.8 m.p.h.
- Average weight . . . . . 11,500 pounds
- Percent empty 32.2%

All single-unit trucks:

- Number of vehicles observed 952
- Average speed . . . . . 47.0 m.p.h.
- Average weight . . . . . 8,300 pounds
- Percent empty 49.6%

Semi-trailers (multiple units):

- Number of vehicles observed 1033
- Average speed . . . . . 44.4 m.p.h.
- Average weight . . . . . 37,900 pounds
- Percent empty 30.8%

The heaviest vehicle observed was a 3 axle tractor-truck with a 2 axle, tank-type, semi-trailer having a gross weight of 83,600 pounds and traveling at 38 miles per hour.

The fastest vehicle observed was an empty, open pick-up truck weighing 3400 pounds and traveling at 72 miles per hour.

Data for 1944, 1946, 1948, 1949, 1950, 1951, 1952, 1953, 1954, and 1955 have been obtained from Traffic Speed Reports 24, 33, 40, 43, 45, 46, 50, 52, 54, and 57, respectively, and are compared with the 1956 data in Table IV.

TABLE IV

COMPARISON OF DATA FROM VARIOUS YEARS

	1944	1946	1948	1949	1950	1951	1952	1953	1954	1955	1956
No. of Single-Unit Trucks*	197	839	493	578	791	1,242	1,482	1,239	905	762	952
Ave. Speed of * Single-Unit Trucks	35.7	40.0	42.4	42.2	42.4	43.0	43.4	43.9	45.8	45.9	47.0
Ave Weight of * Single-Unit Trucks	**	8,600	8,800	9,400	8,700	8,600	8,700	8,400	8,000	8,900	8,300
No. of Semi-Trailers	94	586	627	581	879	1,402	1,354	1,507	1,064	1,120	1,033
Ave. Speed of Semi-Trailers	36.0	39.6	42.7	43.2	42.7	43.5	44.1	43.1	43.6	43.5	44.4
Ave. Weight of Semi-Trailers	**	29,200	31,900	32,500	36,700	36,700	35,900	35,800	37,400	38,400	37,900

* These values are for all Single-unit trucks regardless of their gross-weights.

** Average weights in 1944 were recorded by a different system than that used in succeeding studies.

The survey for 1956 indicates that the average speed of single-unit trucks weighing more than 5,000 pounds increased 0.4 miles per hour, while the average speed of semi-trailers has increased 0.9 miles per hour over the previous year.

During the past year the average weight of both single-unit trucks with gross-weight heavier than 5,000 pounds and of semi-trailers have decreased approximately 500 pounds.

It was observed that 15 or 4.2 percent of the trucks with gross weights less than 5,000 pounds were exceeding the legal speed limit (65 m.p.h.) and only 2 or 0.6 percent were exceeding the "enforcement speed limit" (70 m.p.h.). In the case of single-unit trucks with gross-weights of 5,000 pounds or more, 260 or 43.6 percent were exceeding the legal speed limit (45 m.p.h.) and 94 or 15.8 per cent were exceeding the "enforcement speed limit" (50 m.p.h.) Of the semi-trailers observed, 387 or 37.5 per cent were exceeding the legal speed limit (45 m.p.h.) and 119 or 11.5 percent were exceeding the "enforcement speed limit (50 m.p.h.) These percentages indicate a slight decrease (1.1%) in speed violations of trucks of less than 5,000 pounds gross-weight, a slight decrease (2.6%) in speed violations of trucks of over 5,000 pounds gross-weight, and also a decrease (3.6%) in speed violations of semi-trailers when compared with 1955 values.